DOCUMENT RESUME

ED 259 225 CE 042 008

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TITLE The Effects of Computer Generated Schedules on the Performance of Athabasca University Learners. REDEAL Research Report #5. Project REDEAL. Research and Evaluation of Distance Education for the Adult Learner.
INSTITUTION Athabasca Univ., Edmonton (Alberta).
SPONS AGENCY Alberta Dept. of Advanced Education and Manpower, Edmonton.
PUB DATE Oct 89
NOTE 40p.; For related documents, see ED 249 346-348, CE 042 002, and CE 042 004-011.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adult Education; *Adult Students; *Computer Oriented Programs; *Computer Software; *Distance Education; Foreign Countries; Higher Education; *Home Study; *Scheduling; Time Management
IDENTIFIERS Alberta

ABSTRACT

A post hoc analysis was conducted of a computer-based prototype designed to generate individualized study schedules for learners enrolled in two home study courses at Athabasca University. The project sought to determine the use of such a prototype in home study courses and its effect on completion rates. Learners in the courses were asked if they would like a study schedule generated for them. Results showed that, while the majority of learners elected to receive an individualized study schedule, the learners did not like using the schedules, very few learners used or followed the prescribed schedules, and the schedules were not effective in increasing course completion rates. Problems with interpreting the results resulted from problems in the design and implementation of the project, namely schedules were received after courses started, tutors were not trained to deal with learner excuses and to renegotiate, and tutors did not discuss schedules with learners on a consistent basis. Suggested ways of improving the prototype were: allowing the learner to specify completion dates and associating a contingency with completing tasks on schedule. (A description of the computer program is appended.) (YLB)

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RESEARCH REPORT SERIES

The Effects of Computer Generated Schedules on the Performance of Athabasca University Learners

Robert E. Spencer

REDEAL Research Report #5

Project REDEAL
Research and Evaluation of
Distance Education for the Adult Learner

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Project REDEAL

The Effects of Computer Generated Schedules on the Performance of Athabasca University Learners

Robert E. Spencer

REDEAL Research Report #5

October, 1980

Sponsored by

Innovative Projects Fund

Advanced Education & Manpower

and

Athabasca University

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Abstract

A post-hoc analysis of a computer-based prototype designed to provide learners with individual study schedules for home study courses is presented. Results show that, while the majority of learners selected to receive an individualized study schedule, the learners did not like using the schedules, very few learners used or followed the prescribed schedules, and the schedules were not effective in increasing course completion rates. Problems with interpreting the results, due to the design and implementation of the project, are discussed. Ways to improve the prototype and areas for future future research are suggested.

The Effects of Computer Generated Schedules on the Performance of Athabasca University Learners

The need to allow learners to progress through a course at their own rate, self-pacing, has received considerable attention in recent years (Bloom, 1968; Flammer, 1971; Glaser, 1968; and Keller, 1968). As a result, several instructional systems have been developed to accomodate individual differences in learning rates. Two problems frequently associated with self-paced instructional systems are: 1) high incidence of course withdrawals, and; 2) delayed student work patterns (Born and Whelan, 1973; Glick and Semb, 1978; and Sheppard and MacDermot, 1970). Further, several studies (Henneberry, 1978; Lloyd and Knutzen, 1969; and Schwartz, 1976) suggest that delayed student progress is correlated with both inferior academic performance and eventual course withdrawal.

While the above studies are concerned with traditional university students enrolled in "in residence" courses, the same phenomena have been reported for adult learners taking self-paced home study courses. For example, Harrington (1977) noted that dropout rates for home study courses have been shockingly high, often over ninety percent. Donehower (1968) reviewed the completion rates for 56 institutions offering correspondence study courses and found that completion rates ranged from approximately 19 to 64 percent. Donehower (1968) also noted that there is a significant relationship between time lapse between enrollment and submission of the first assignment and the probability of completing the course. That is, the greater the time lapse the greater the

probability of a student withdrawing.

In an attempt to identify those variables which contribute to student withdrawals, several researchers began to investigate the reasons why adult learners withdraw from home study courses. Carp, Peterson, and Roelfs (1973) found that the primary reason given for withdrawing was that the students did not have enough time. McIntosh (1978) reported that lack of time in some form or another was mentioned in most answers given by students who decided not to continue their studies. Non-completers in the Bradley and Lehman (1975) study mentioned that they could not handle the scheduling or reallocation of time so that both school work and job responsibilities could be maintained. Other factors often cited as deterrents for adult learners to successfully complete their stuies are: health related problems; job related problems; home responsibilities; financial problems, and; lack of contact with teachers and students (De Goede and Hoksbergen, 1978).

Given the above reasons for adult learners withdrawing from home study courses, there are several strategies that educators could adopt in attempting to reduce withdrawal rates. Tosti and Wilson (1972) indicate that "instructional management", those activities involved in the decision to initiate a specific activity for a given student based upon an assessment of the student's performance, is a necessary component for all courses and is a major factor contributing to student success. MacKenzie, Christensen, and Rigby (1968) suggest that the two routes that seem most promising for reducing withdrawal rates in home study courses are: 1) counselling in the form of screening

and tutorial services, and; 2) systems for managing student activity in a course which includes pacing schedules and time management. Anderson and Tippy (1971) take a similar position. They recommend that home study materials be prepared which enable the learner to plan a study schedule from the time he/she submits the first lesson until the final examination. In order for the learner to produce a realistic schedule, they believe the learner must be given an accurate estimate of what successful students have done in the past, especially data concerning preparation time, study time, and turn-around time.

Several successful computer-managed instructional systems (CMI) have been developed to handle these types of instructional management activities in the college and university classroom (Dick and Gallager, 1972; Kelley, 1968; and Merrill, 1974). However, the application of this technology to home study courses is scarce at best. The purpose of this paper is to briefly describe a computer-based prototype developed to generate individualized study schedules for learners enrolled in two home study courses at Athabasca University. The purpose of the project was to determine the utility of such a prototype in home study courses and its effect on completion rates. Since an evaluation plan was not developed at the beginning of the project, members of the REDEAL team conducted a post-hoc analysis of the data in an attempt to answer the above questions.

Method and Procedures

During the academic year of 1978-1979, preliminary work was underway to determine the usefulness of producing personal course related study schedules for learners enrolling in Introductory Interpersonal Communication (229) and Motivation and Management (319) at Athabasca University. Course 229 is a three-credit course and the latter course, 319, is a six-credit course. Learners enrolling in these courses during this time were contacted by phone and asked if they would like a study schedule generated for them. If the learner opted for a study schedule, the University's computing service department was contacted and a study schedule was generated using a unique computer program specifically designed for that purpose. Basically, the program was designed to specify dates by which assignments and exams should be completed. This was done by estimating the percentage of time the learners should take to complete each assignment and exam and programming the computer to produce a series of dates by which these tasks should be completed. Since learners could enroll any time during the year and some learners may wish to complete the course in less than the six or twelve months alloted, the program was designed to take these variables into account. (For a more detailed description of the computer program, see Appendix A.) After a study schedule was generated, both the tutor and the learner received a copy through the mail. Those learners who did not opt for an individual study schedule proceeded through the course without the aid of specified dates by which to complete assignments and exams. Approximately a year after the project started, the authors began to collect and analyze the data. The first step was to contact each of the five tutors

involved in the project and request from them a list of their learners, indicating which learners opted for the schedules, which learners did not, and the status of each learner in the course. The tutors were then interviewed by phone or in person as to their feelings about the use of study schedules. Once all the above information was collected, the authors then obtained learner performance data for each learner from the university's student record system.

Results

Two tutors failed to send in their list of learners. Since the authors had no idea which of their learners received a schedule and which did not receive a schedule, only learner choice and completion data for two of the tutors in course 229 and for one of the tutors in course 319 are reported in this paper. Selected comments from these three tutors are also presented.

Learner Choice Data

Table 1 presents the number and percentage of learners who did and did not opt to receive an individualized study schedule.

Table 1 goes about here

Data is presented by course and by tutor. In course 229, approximately half the learners chose to receive a study schedule for the entire course.

However, when one looks at learner choice data by tutor, one finds a 60/40 split in favor of study schedules for tutor 1 and the reverse for tutor 2, a 40/60 split. Four of tutor 2's learners selected study schedules for the last credit of the course. Learner choice data for course 319, shows that two out of every three learners selected the study schedule condition.

Learner Completion Data

For the purpose of this paper, a learner was considered a completer if he/she completed the entire course, three credits in a three-credit course and six credits in a six-credit course. Table 2 presents completion data for learners in the schedule and no schedule condition for both courses by tutor.

Table 2 goes about here

For course 229, average completion rates are also presented for the two tutors combined. The data indicate that there is no difference between completion rates for tutor 1. Completion rates for tutor 2 are approximately fifteen percent higher for learners who chose not to receive a study schedule than for learners who chose to receive a study schedule. When data for the two tutors are combined, completion rates for course 229 are approximately seven percent higher for learners in the no schedule condition than for learners in the study schedule condition. Completion rates for course 319 are approximately nineteen percent higher for learners in the no schedule

condition than for learners in the schedule condition. This difference could become even larger since twice as many students in the no schedule condition than in the schedule condition were still enrolled in the course at the time the data were analyzed.

Tutor Comments

Data obtained from interviews with the three tutors indicate that the tutors initially thought that the idea of using individual schedules to help their students progress through the course was a good one. However, their opinion changed for various reasons. First, the learners expressed a dislike for the schedules. Second, only a small percentage of the learners, perhaps twenty percent, actually used or followed the schedules. The tutors indicated that this may have been partially due to their lack of referring to the schedules during their interactions with the learners. Lastly, the tutors found that it was often awkward to discuss the schedules with their students since they had not been specifically trained how to use them nor trained how to renegotiate a new schedule for a learner who was behind schedule. The latter was reported to be particularly important, since several learners received their schedules late and were, therefore, already behind schedule.

Discussion

The results indicate that the majority of learners, when given the option between the study schedule condition and the no-schedule

condition, will choose to receive a study schedule. The degree to which learners make this choice, however, seems to depend on how the tutor presents the options to the learner. Both tutor 1 and tutor 2, for example, conveyed to the authors that they tried to "sell" the study schedules to their learners. Tutor 2, on the other hand, reported that he tried to present the options to his learners in a "non-biased" manner. (The only exception was that he convinced four of his students to receive a schedule for the last credit of the course to "insure" they completed.) Even when the study schedule option was presented in a "non-biased" manner, a large percentage of the learners (40%) still chose the study schedule condition. This data seems to indicate that many of the learners felt some need for assistance in planning their course activities.

The computer-generated schedules, however, did not appear to provide the learners with the assistance they seem to need or want. The learners indicated to their tutors a dislike for the schedules. The tutor interviews revealed that only a small percentage of learners that chose to receive schedules actually used or followed them. In addition, learners who received the schedules had an equivalent or lower completion rate than learners who did not choose to receive a schedule. Based on these data, one could argue that the schedules were not effective in increasing completion rates.

However, due to problems with the design and implementation of the project, the conclusions one can draw from these data are quite

limited. Since very few learners used or followed the study schedules, the comparison of completion rates between the schedule and no-schedule condition is not appropriate. Had the tutors kept complete records as to which learners actually used or followed the schedules, then comparisons could have been made between those learners who received a schedule but did not use it, those learners who received a schedule and used it, and those learners who did not receive a schedule. Without these comparisons, however, all one can really say is that sending learners a study schedule does not appear to be an effective means of increasing completion rates. But, even this conclusion may not be warranted. It is quite possible that the selection procedure could have been responsible for the differences in completion rates reported in this paper. That is, learners who did not indicate a need for a study schedule might have had a higher probability of completing a course than learners requesting a schedule and the study schedules simply did not overcome the differences created by the selection procedure. A comparison between those learners requesting a schedule and not using it and those learners requesting a schedule and using it could have perhaps shed some light on this question. If, for example, completion rates were found to be higher for those learners receiving and using the schedule than for those learners receiving and not using the schedule, then one could have concluded that following a study schedule increases the probability of completing a course for those learners who indicate a need for a schedule.

The fact that learners indicated to their tutors a dislike for the study schedules and did not find the schedules useful in planning their study activities does not necessarily mean that the study schedules generated by the prototype described in this paper could not be useful. It is quite possible that the reason very few learners used the schedules, that they did not like using them, and that they did not find them useful, could be due to the implementation problems encountered in the project. If all the learners would have received the schedules before their courses started, if the tutors would have been trained to deal with learner excuses and renegotiate schedules, and if the tutor would have discussed the schedules with their learners on a consistent basis, then perhaps quite different results would have been found.

Future research efforts should address these issues, as well as, looking at additional ways of improving the prototype described herein. For example, the current prototype might be improved by allowing each learner to specify dates by which assignments and exams should be completed. In order for learners to do this, however, it seems pertinent to provide the learner with better data as to what "successful" students have done in the past. The prototype might also be made more effective if some type of contingency was associated with completing course tasks on schedule. The contingency might take the form of small grade incentives or self-imposed contingencies. The latter suggest providing learners with training in time-management skills and opens up a whole other area to research.

In summary, as long as there continues to be a completion problem in home study courses and learners indicate a need for assistance in scheduling their course activities, it seems appropriate to continue to develop and test systems which are designed to aid the learner in progressing through the course. In order to evaluate these systems, however, one must overcome the design and imlementation problems encountered in the project reported on in this paper. Careful attention must be given to these problems is one is going to be able to make any sound conclusions about the usefulness and effectiveness of such systems.

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Table 1

Number of Learners Selecting and

Not Selecting Study Schedules

Course 229

	Schedules	No Schedules
Tutor 1	22 (59.5%)	15 (40.5%)
Tutor 2	10 (40.0%)	11 (44.0%)
	4 (16.0%) 3rd credit only	
Tutor 1 & 2	32 (51.6%)	26 (41.9%)
combined	4 (6.5%) 3rd credit only	

Course 319

	Schedules	No Schedules
Tutor 3	16 (66.7%)	8 (33.3%)

Table 2

Completion Rates for Learners Selecting and Not Selecting Study Schedules

Course 229

	Schedules	No Schedules
Tutor 1	54.5%	53.3%
Tutor 2	30.0%	54.5%
	100.0% 3rd credit only	
Tutor 1 & 2 combined	46.9%	53.8%
	100.0% 3rd credit only	

Course 319

	Schedules	No Schedules
Tutor 3	31.3% (12.5%)[1]	50.0% (25.0%)[1]

[1]Numbers in parentheses indicate percentage of students still enrolled in course at time of analysis.

APPENDIX A

User Documentation

Student Scheduling System

First Draft

Prepared for Computing Services

by Donald Cowper

Copyright 1978 - Athabasca University

UNIX File Name: tutor/globals

Number of Words: 1815

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Overview

The student scheduling system was created to assist tutors in pacing students registered in individualized study courses. Students may enroll at any time and specify a variable time frame for course completion. Before starting to work on the computer system the tutor must break the course down into a number of steps and specify a percentage of the total study time to be spent on each step. The system uses this information in computing an individual schedule.

The computer system asks the tutor for the student's name, his tutor number, course start date, course completion date, and the course step with which to begin the scheduling process. Two forms of output are obtained from the programs: individual student schedules suitable for sending to the student and a master list of all course activities happening each day for each of several possible tutors in a course.

1. Before you use the Student Scheduling System

1.1 Signing on to UNIX

You must first signon to the Athabasca University Computing system. Call either 452-2855 or 452-3695, listen for the high pitch signal and place the phone receiver in the coupler. Press the BREAK key until UNIX responds with the message-

Athabasca University Computing Services
login;

When this occurs you type

tutor

and press the RETURN key. You must press RETURN each time you have finished typing. The computer will respond with-

Password:

When you type in the correct password the signon procedure is complete.

1.2 Changing to the Proper Directory

When the % sign appears following the signon procedure change to the proper directory by typing the command-

chdir XXXXXX

where XXXXXX is the name of the directory. In general the directory names are the first three letters of one of the key words in the course name and its 3 digit course number. For example Human Relations Management records are kept in the directory hum319 while Administrative Principles records are kept in the directory adm313.

1.3 Checking your Directory

You can check to see if you are in the proper directory by typing the command-

pwd

This command is short for print working directory and will yield the response-

/fs1/tutor/XXXXXX

where XXXXXX is the directory name.

1.4 Course Descriptor Files

Before you can schedule any students you must have broken your course into steps and specified the percentage of time to be spent on each step. This information must be entered into a file, usually having the same name as the directory. The first line of the file must contain the course name and number. Second and subsequent lines hold the course steps and their percentage times separated by a vertical bar. The percentage time should be given to one place after the decimal even though the decimal point is omitted from the number. This file should be created and tested before any scheduling is done. Appendix C shows the course descriptor file for the first two credits of Human Resources Management.

It is possible to have more than one descriptor file. For example if you want to create a schedule for only the intro package you might create a file called intro to hold the descriptors for the first credit block and have the time percentages add up to 100s. You will be required to know the name of the file holding your course descriptors in steps 1 and 4 described in the next section.

2. How to Use the Student Scheduling System

To run the Student Scheduling System you will have to use the following commands. Each of the steps is described below in detail. A working example is shown in Appendix A.

Command	Task Being Done
step.1	-Creating schedules for students
step.2	-Printing individual student schedules
step.3	-Updating the Master File with new students
step.4	-Preparing the Master File for printing
step.5	-Printing Master listing

2.1 Step #1 - Scheduling Students

To run step 1 issue the command: step.1

First you will be asked to enter the name of the file holding the course descriptors. Type the name of the file (normally the same as the directory name) and press RETURN.

For each student you will be asked to supply:

a. the student's name. Use upper and lower case letters.

b. the tutor number. Supply only significant digits. For example enter 47 not 0047.

c. the start date. Date to begin scheduling in the format: day month year separated by single spaces. For example 10 11 78 specifies the 10th day of November 1978. The year could have been typed 1978.

d. the end date. Date when the course is to be completed. The year must be specified in the same format as the start date.

e. beginning course step. If you are creating a new schedule this number would be 1. However you can specify a line number other than 1 and reschedule a student for part of a course. An example of this is shown in the working example in Appendix A.

2.1.1 Defaulting Parameters

After you have entered the names of the second and subsequent students you will be asked the question:

Repeat Previous Parameters?

If the student whose name you have just entered has the same tutor, start date, completion date, and beginning step as the previous student, simply type yes (y) and the student's schedule will be created. If not, type no (n)

and you will be asked to supply the appropriate information.

2.1.2 Ending the Program

When you have entered all the student names to be processed and the relevant data for each simply press the RUB OUT or DELETE key. The $ sign will appear on the screen.

2.2 Step #2 - Printing Individual Schedules

To run step 2 issue the command: step.2

This step requires no input form the keyboard. It tells you that the formatting of the individual student schedules is taking place. This process can take several minutes, so be patient. When the process is complete a message will tell you this. Normally the printouts would automatically be printed on the line printer. If this happens a receipt number will appear, copy it down. If the line printer is unavailable you will be told that the output is held in file :ind and you should make arrangements to have it printed on a terminal.

2.3 Step #3 - Updating the Master File

To run step 3 issue the command: step.3

As well as creating individual schedules you will want to store the student's schedule away in the master file with those of other students already in the system. Step 3 does this. Again no keyboard input is required. The updates are added to the master file and the master file is resorted.

2.4 Step #4 - Preparing for Master List Printout

To run step 4 issue the command: step.4

Steps 1 through 3 must be executed every time you use the student scheduling system. Steps 4 and 5 should be done on a weekly basis if students have been added to the system during that week. Step 4 is a program which prepares the entries in the master file for doing a master printout. It requires the name of the file holding the course descriptors as keyboard input. The program terminates with the message

"-- Processing of Master List Complete"

2.5 Step #5 - Formatting and Printing of Master List

To run step 5 issue the command: step.5

This step runs the output of step 4 through the text formatting program nroff to produce the final tutor list. No keyboard input is required. This step can require five minutes or longer depending on the size of the master file and the activity level on the computer system. If you don't want to wait for it to finish place a & at the end of the command like this

step.5&

A job number will be given and you may sign off. Normally the output from this step will be printed on the line printer and sent to you in the inner office mail. If the printer is not in operation call Computing Services and make arrangements to have the output printed on a terminal.

3. Signing off

To sign off hold down the button marked CNTRL and press the letter d. After several seconds the signon message will appear on the screen. When this happens turn off the terminal and hang up the phone.

4. What's Happening Behind the Scenes

4.1 Step #1 Creating Schedules

Input < Terminal
- Name of file holding course descriptors
- Student names
- Start Date
- End Date
- Beginning Course Step

Input < Course Descriptors from file named above.

Output > updates

This file will hold the records to be added to the master file. It is created if it does not exist and is emptied if it does exist.

Output > print

This file will hold the nroff commands and macros required to print the individual student schedules. Created or emptied as required.

4.2 Step #2 - Printing Individual Student Schedules

Input < print (described in step 1)
Input < /fs1/tutor/control

Macro definitions for nroff run. This file is used in connection with every nroff run associated with the student scheduling system.

Output > :ind

The student schedules are placed in the file :ind before being printed. This file is temporary and will disappear at the next system start up.

4.3 Step #3 - Updating the Master File

Input < updates

This file was created in step #1 and holds the records to be added to the master file.

Input < master
Output > master

Master holds the accumulated records of all students who have been put into the system sorted by tutor with subsorts by date and name. The updates are added to the end of the master file and the master file is re-sorted.

4.4 Step #4 - Preparing for Master List Printout

Input < keyboard

Name of file holding file descriptors.

Input < Master

This file is described in step #3 above.

Input < File Descriptor file

The name of the course is read from the first line of the file Descriptor file. Other lines are not read.

Output > masterout

The input from master is grouped together by day and prepared for formatting by nroff. The file masterout is created or emptied as required.

4.5 Step #5 - Formatting and Printing Master Lists

Input < masterout

This file was created in step #4.

Input < /fs1/tutor/control

Contains nroff macro definitions

Output > :masterout

The master tutor list is place in :masterout before printing. Normally only one copy of the master list will be generated.

Appendix A - Sample Student Scheduling Session

```
    033:
Athabasca University Computing Services
login; tutor
Password:

PROPRIETARY SOFTWARE
FILES PREFIXED WITH A ":" ARE TEMPORARY.

Temporary files will be removed at each
system start-up.

The system will be down all day Friday, Oct 20th.
We are making an all out effort to get the printer running.
$ chdir hum319

$ $ pwd
/fs1/tutor/hum319
$ step.1
                    Welcome to the Student Scheduling Program
                    Scheduling of Students - Step #1

Enter file holding course descriptors: hum319


Name of Student:
Name of Student: Don Student

Tutor Number: 14
        Start Date (dy mo year): 9 10 78
        End Date (dy mo year):   30 4 79

Begin scheduling with course step 1

Name of Student: Joee Clark

Repeat Previous Parameters? yes

Name of Student: Sandra Hope

Repeat Previous Parameters? no

Tutor Number: 12
        Start Date (dy mo year): 30 10 78

        End Date (dy mo year):   1 6 79

Begin scheduling with course step 6

Name of Student: (rub OUT)
$ step.2
                          Student Scheduling System - Step #2
                        Printing of Individual Student Schedules

        - Individual Schedules Now Being Formatted

        - Formatting of Student Schedules is Complete
        - Schedules are found in file :ind
$
```

```
step.3

                    Student Scheduling System - Step #3
                         Updating of Master File

          - Updates Added to Master File
          - Sort of Master Complete
          - Update of Master Complete
%

% step.4

                    Student Scheduling System - Step #4
                    Preparation For Printing Of Master List

Enter file holding course descriptors: hum319
          - Processing of Master List Complete
%
  step.5

                    Student Scheduling System - Step #5
                         Formatting of Master List

          - Now Formatting Master List
          - Formatting of Master List Complete
          - Output found in file :masterout
%
```

Output from Steps 2 and 5 is shown on the following 6 pages.

cat :ind

18 1978

Don Student

Individual Study Schedule for Don Student

Human Resources Management - 319

Course Start Date: 9/10/78

Course Completion Date: 30/ 4/79

Tutor: Bud McNairn

Course Step	Days to do Work	Expected Completion Date	Actual Completion Date
Credit 1 - Unit 1	15	24/10/78	
Credit 1 - Unit 2	5	29/10/78	
Credit 1 - Unit 3	5	3/11/78	
Credit 1 - Worksheet	5	8/11/78	
Credit 1 - Exam and Rewrites	10	18/11/78	
Credit 2 - Unit 4	5	23/11/78	
Credit 2 - Unit 5 (worksheet)	5	28/11/78	
Credit 2 - Unit 6	10	8/12/78	
Credit 2 - Worksheet for 6	10	18/12/78	
Credit 2 - Exam and rewrites	10	28/12/78	

Individual Study Schedule for Joee Clark

Human Resources Management - 319

Course Start Date: 9/10/78

Course Completion Date: 30/ 4/79

Tutor: Bud McNairn

Course Step	Days to do Work	Expected Completion Date	Actual Completion Date
Credit 1 - Unit 1	15	24/10/78	
Credit 1 - Unit 2	5	29/10/78	
Credit 1 - Unit 3	5	3/11/78	
Credit 1 - Worksheet	5	8/11/78	
Credit 1 - Exam and Rewrites	10	18/11/78	
Credit 2 - Unit 4	5	23/11/78	
Credit 2 - Unit 5 (worksheet)	5	28/11/78	
Credit 2 - Unit 6	10	8/12/78	
Credit 2 - Worksheet for 6	10	18/12/78	
Credit 2 - Exam and rewrites	10	28/12/78	

Individual Study Schedule for Sandra Hope

Human Resources Management - 319

Course Start Date: 30/10/78

Course Completion Date: 1/ 6/79

Tutor: Sandra Dowie

Course Step	Days to do Work	Expected Completion Date	Actual Completion Date
Credit 2 - Unit 4	5	4/11/78	
Credit 2 - Unit 5 (worksheet)	5	9/11/78	
Credit 2 - Unit 6	10	19/11/78	
Credit 2 - Worksheet for 6	10	29/11/78	
Credit 2 - Exam and rewrites	10	9/12/78	

Master List for

Human Resources Management - 319

Tutor: Sandra Dowie

4/11/78 Sandra Hope	Step Credit 2 - Unit 4	Status _____
9/11/78 Sandra Hope	Step Credit 2 - Unit 5 (worksheet)	Status _____
19/11/78 Sandra Hope	Step Credit 2 - Unit 6	Status _____
29/11/78 Sandra Hope	Step Credit 2 - Worksheet for 6	Status _____
9/12/78 Sandra Hope	Step Credit 2 - Exam and rewrites	Status _____
1/ 6/79 Sandra Hope	Step Complete Course	Status _____

Master List for

Human Resources Management - 319

Tutor: Bud McNairn

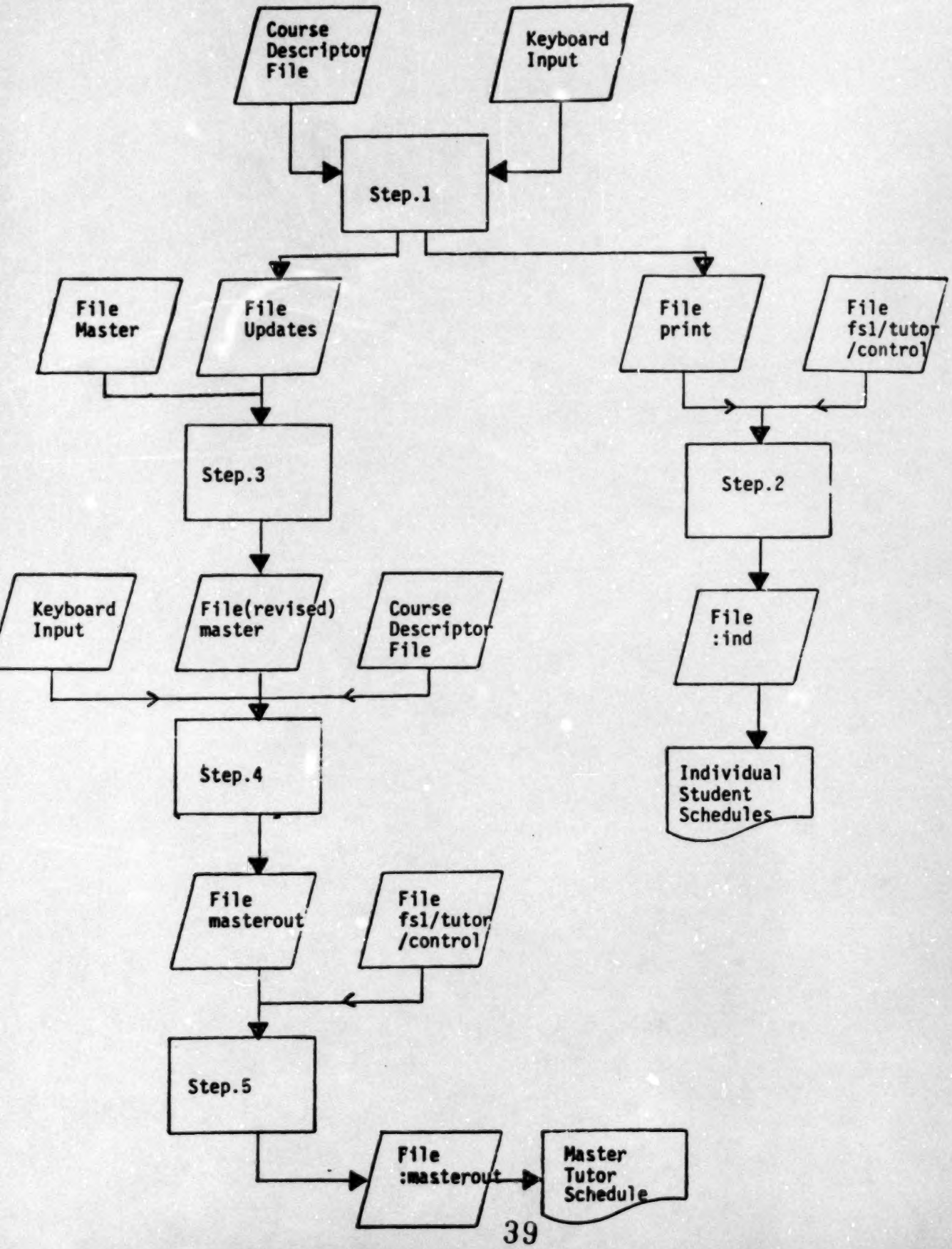
24/10/78	Step	Status
Don Student	Credit 1 - Unit 1	_____
Joee Clark	Credit 1 - Unit 1	_____
29/10/78	Step	Status
Don Student	Credit 1 - Unit 2	_____
Joee Clark	Credit 1 - Unit 2	_____
3/11/78	Step	Status
Don Student	Credit 1 - Unit 3	_____
Joee Clark	Credit 1 - Unit 3	_____
8/11/78	Step	Status
Don Student	Credit 1 - Worksheet	_____
Joee Clark	Credit 1 - Worksheet	_____
18/11/78	Step	Status
Don Student	Credit 1 - Exam and Rewrites	_____
Joee Clark	Credit 1 - Exam and Rewrites	_____
23/11/78	Step	Status
Don Student	Credit 2 - Unit 4	_____
Joee Clark	Credit 2 - Unit 4	_____
28/11/78	Step	Status
Don Student	Credit 2 - Unit 5 (worksheet)	_____
Joee Clark	Credit 2 - Unit 5 (worksheet)	_____
8/12/78	Step	Status
Don Student	Credit 2 - Unit 6	_____
Joee Clark	Credit 2 - Unit 6	_____
18/12/78	Step	Status

Don Student	Credit 2 - Worksheet for 6	_____
Joee Clark	Credit 2 - Worksheet for 6	_____

28/12/78	Step	Status
Don Student	Credit 2 - Exam and rewrites	_____
Joee Clark	Credit 2 - Exam and rewrites	_____

30/ 4/79	Step	Status
Don Student	Complete Course	_____
Joee Clark	Complete Course	_____

Student Scheduling System - Input and Output



Appendix C - Listings of Course Descriptor Files

```
cat hum319

Human Resources Management - 319
Credit 1 - Unit 1|75
Credit 1 - Unit 2|25
Credit 1 - Unit 3|25
Credit 1 - Worksheet|25
Credit 1 - Exam and Rewrites|50
Credit 2 - Unit 4|25
Credit 2 - Unit 5 (worksheet)|25
Credit 2 - Unit 6|50
Credit 2 - Worksheet for 6|50
Credit 2 - Exam and rewrites|50
$
  cat  ./adm232/adm232


Administrative Principles - 232
Credit 1 - Submit TMA # 1|86
Credit 1 - Submit TMA # 2|86
Write Exam # 1|112
Exam 1 Marked and Returned|57
Credit 2 - Submit TMA #1|86
Credit 2 - Submit TMA #2|86
Write Exam # 2|112
Exam 2 Marked and Returned|57
Credit 3 - Submit TMA #1|57
Credit 3 - Submit TMA #2|57
Credit 3 - Submit TMA #3|57
Write Exam # 3|112
Exam 3 Marked and Returned|57
$ $

    cat ../com229/com229

Introductory Interpersonal Communications - 229
Credit 1 - Units 1 - 3|80
Credit 1 - Units 4 to 6|80
Credit 1 - Units 7 and 8 |80
Credit 1 - Exam and Rewrite|80
Credit 2 - Unit 9|60
Credit 2 - Unit 10|60
Credit 2 - Unit 11|60
Credit 2 - Exam and Rewrite|80
$
```